CLAIMS:

1. An optical imaging system, characterized by:

(a) at least one laser or LED light source for producing at least one light beam (10);

(b) beam shaping optics (11) arranged to expand said at least one light beam (10) in one direction;

(c) at least one one-dimensional array of beam switches (1) arranged to receive said expanded at least one light beam (10) and modulate it to form a line image;

(d) a projection lens (12) for projecting said line image;

(e) a slow mirror scanner (13) arranged to scan consecutive said line images to form a two-dimensional image.

2. The optical imaging system of claim 1, characterized by:

said expanded at least one light beam (10) being arranged to pass sequentially through two one-dimensional arrays of beam switches (1) arranged to receive said expanded at least one light beam (10) and modulate it to form a line image, which two one-dimensional arrays of beam switches (1) are arranged to operate simultaneously.

3. The optical imaging system of claim 1, characterized by:

said expanded at least one light beam (10) being arranged to pass through a one-dimensional array of beam switches (1) arranged to receive said expanded at least one light beam (10) and modulate it to form a line image and being returned through the same array by a reflection mirror (16), said mirror (16) being arranged to return said beam (10) under an angle which is different from the angle of the angle of the incident light beam in order to facilitate separation there from.

4. The optical imaging system of any one of claims 1 to 3, characterized by:

(f) three separate laser or LED light sources for producing three separate light beams (10);

(g) beam shaping optics (11) arranged to expand each respective light beam (10) in one direction;

(h) a respective one-dimensional array of beam switches (1) arranged to receive each respective expanded light beam (10) and modulate it to form a respective line image;

(i) means for combining (17, 18, 19) said respective line images to one line image;

(j) a projection lens (12) for projecting said combined line image;

(k) a slow mirror scanner (13) arranged to scan consecutive said combined line images to form a two-dimensional image.

5. The optical imaging system of claim 4, characterized by said means for combining said respective line images to one line image being a dichrioc cube prism (17).

6. The optical imaging system of claim 4, characterized by said means for combining said respective line images to one line image being dichroic plate mirrors (18).

7. The optical imaging system of claim 4, characterized by said means for combining said respective line images to one line image being a combination of dichroic plate mirrors (18) and at least one folding mirror (19).

8. The optical imaging system of any one of the preceding claims, characterized by the at least one one-dimensional array of beam switches (1) comprising a plurality of optical beam switches for controllably switching an optical interface between a reflective state in which light incident on said optical interface undergoes frustrated total internal reflection and a non-reflective state in which frustrated total internal reflection is prevented at said optical interface.

9. The optical imaging system of claim 8, characterized by each of the plurality of beam switches (1) comprising:

(a) a scattering foil (2), which is sandwiched between a first (3) and a second (4) glass plate;

(b) a foil electrode (6) associated with said foil (2);

(c) a first transparent electrode (5) associated with said first glass plate (3);

(d) a second electrode (7) associated with said second glass plate (4);

(e) a voltage source for selectively applying voltage potentials to said electrodes (5, 6, 7);

wherein:

(i) application of a first set of voltage potentials to said electrodes (5, 6, 7) is arranged to attract said foil (2) towards said first glass plate (3), in order to scatter light incident on said first glass plate (3);

(ii) application of a second set of voltage potentials to said electrodes (5, 6, 7) is arranged to attract said foil (2) away from said first glass plate (3), in order to allow light to be reflected from said first glass plate (3).

10. The optical imaging system of claim 9, characterized by said scattering foil (2) being separated from at least one of said glass plates (3, 4) by spacers (8).

11. The optical imaging system of claim 10, characterized by said spacers (8) being arranged between said scattering foil (2) and said second glass plate (4).

12. The optical imaging system of any one of claims 8 to 11, characterized by a prism (9) being arranged on said first glass plate (3), through which prism (9) light incident on said first glass plate (3) is arranged to pass.

13. The optical imaging system of any one of claims 8 to 12, characterized by a dielectric layer (21) being sandwiched between said first glass plate (3) and said first electrode (5).

14. The optical imaging system of any one of claims 8 to 13, characterized by a dielectric layer (21) being sandwiched between said second glass plate (4) and said second electrode (7).

15. The optical imaging system of any one of claims 8 to 14, characterized by said scattering foil (2) having cuts (2a) separating the foil of each respective beam switch of the at least one one-dimensional array of beam switches (1) from each other.

16. The optical imaging system of claim 15, characterized by a surface area of said first glass plate (3) being arranged to have light scattering properties (3a) above said cuts (2a).

17. The optical imaging system of any one of claims 8 to 16, characterized by said first glass plate (3) being common to all beam switches (1) of said at least one one-dimensional array of beam switches (1).

18. The optical imaging system of any one of the preceding claims, characterized by a diaphragm (15) being arranged in a light path of said optical imaging system, at a location after said projection lens (12).

19. The optical imaging system of any one of the preceding claims, characterized by a polarizer (20) being arranged in a light path of said optical imaging system, at a location after said one-dimensional array of beam switches (1).